

FORT PECK VALLEY COUNTY

The Fort Peck site was located in Valley County approximately 3 miles west of Fort Peck at 47° 59' 48" N and 106° 29' 59" W (Site No. 129 on Map II-1). Elevation at the site was 2,329 feet. The site was established by the Montana Air Quality Bureau to measure background levels of particulates in the area.

Wind data were collected at the site from May 7, 1977, through July 19, 1979. The data set consists of hourly averages of wind speed and wind direction manually reduced from stripchart records. Wind monitoring equipment included a Meteorology Research, Inc., mechanical recording anemometer and wind vane. Anemometer height was 4 meters.

Winds were monitored long enough to give an indication of the wind resource at this location. Data recovery, however, was poor during all months, ranging from 10.1 percent in April to 37.0 percent in June. Overall data recovery was 25.9 percent.

Average monthly wind speeds ranged from 8.4 miles per hour in July to 14.6 miles per hour in February. Average annual wind speed was 10.6 miles per hour.

Monthly averages of wind power ranged from 105.3 watts/m² in July to 449.2 watts/m² in February. Average annual wind power was 219.9 watts/m².

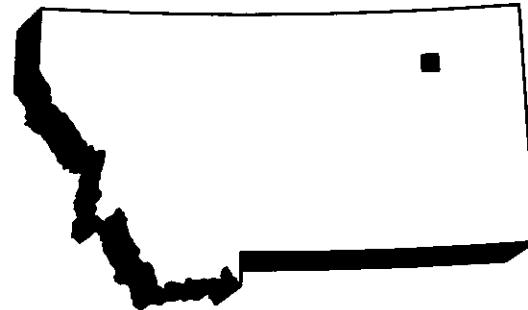


Table IV - 151

Monthly Wind Speed Distribution

VALLEY COUNTY - FORT PECK

05/07/77 - 07/19/79

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	CALM
0.1-1.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1- 0.4
1.1-2.0	0.5	1.0	1.0	0.0	0.6	0.4	1.2	0.0	0.0	0.4	0.0	0.0	0.4	0.5- 0.9
2.1-3.0	2.8	2.5	4.0	1.4	2.6	3.0	1.2	1.1	2.3	2.1	0.0	0.4	2.2	1.0- 1.3
3.1-4.0	2.8	2.5	6.5	4.1	5.0	4.8	5.6	0.8	4.9	1.7	1.1	2.8	3.8	1.4- 1.8
4.1-5.0	5.0	3.0	8.8	6.9	6.9	5.8	7.6	7.5	7.7	5.4	2.3	0.4	5.7	1.9- 2.2
5.1-6.0	8.3	4.7	7.1	4.8	7.7	10.6	12.0	7.7	8.4	4.6	5.7	2.5	7.5	2.3- 2.7
6.1-7.0	7.1	3.0	9.6	4.1	12.7	10.5	13.5	12.5	13.1	4.6	8.0	2.5	9.2	2.8- 3.1
7.1-8.0	9.0	3.5	9.0	6.2	9.8	8.0	11.2	13.9	8.6	11.7	9.0	4.6	8.7	3.2- 3.6
8.1-9.0	9.0	4.4	8.4	6.9	6.2	8.3	7.6	13.9	8.2	16.3	8.0	5.6	8.3	3.7- 4.0
9.1-10.0	7.1	3.5	7.5	2.8	8.7	6.3	10.4	6.9	8.6	6.3	5.5	5.3	6.8	4.1- 4.5
10.1-11.0	6.6	3.0	4.4	7.6	6.1	6.0	6.4	6.1	7.2	6.7	5.7	6.0	5.9	4.6- 4.9
11.1-12.0	5.2	3.2	4.4	5.5	7.3	5.5	4.0	6.4	5.8	5.4	4.1	4.9	5.3	5.0- 5.4
12.1-13.0	5.9	4.0	3.8	5.5	4.3	6.4	4.8	5.1	4.0	3.8	4.4	4.2	4.8	5.5- 5.8
13.1-14.0	3.5	5.2	4.4	8.3	3.6	3.8	2.0	3.5	3.5	3.3	5.5	6.3	4.2	5.9- 6.3
14.1-15.0	5.0	4.0	5.2	9.7	3.0	5.0	2.0	4.0	2.6	2.9	4.4	7.4	4.3	6.4- 6.7
15.1-16.0	4.5	4.0	3.3	5.5	4.4	2.9	2.8	2.4	3.7	4.6	4.6	5.3	3.8	6.8- 7.2
16.1-17.0	3.8	3.5	5.4	3.4	3.7	3.4	2.4	1.6	0.9	3.3	6.4	9.2	3.9	7.3- 7.6
17.1-18.0	2.8	5.7	2.5	4.8	1.9	3.1	0.4	1.3	1.4	3.3	4.4	2.8	2.8	7.7- 8.0
18.1-19.0	2.1	6.7	1.9	4.1	1.0	2.3	1.2	1.3	0.9	2.1	4.6	6.7	2.6	8.1- 8.5
19.1-20.0	1.7	6.9	1.0	2.8	0.6	1.1	1.6	0.3	0.2	1.3	3.2	6.0	1.9	8.6- 8.9
20.1-25.0	5.0	22.5	1.7	4.8	3.0	2.9	2.4	2.1	5.4	10.0	8.7	12.7	6.2	9.0-11.2
25.1-30.0	2.1	3.5	0.2	0.0	0.6	0.3	0.0	1.6	2.1	0.0	1.6	4.2	1.3	11.3-13.4
30.1-35.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.4	0.4	0.2	13.5-15.6
35.1-40.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	15.7-17.9
>40.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.1	>17.9
AVERAGE SPEED (MPH)	10.7	14.6	9.2	11.6	9.3	9.5	8.4	9.4	9.6	10.9	12.9	14.4	10.6	
AVERAGE SPEED (M/SEC)	4.8	6.5	4.1	5.2	4.2	4.2	3.7	4.2	4.3	4.9	5.8	6.4	4.7	
AVERAGE WIND POWER (WATTS/M**2)	217.5	449.2	134.0	385.1	145.3	141.8	105.3	140.2	179.8	206.3	381.8	397.4	219.9	
PERCENT DATA RECOVERY	28.4	30.1	32.2	10.1	34.6	37.0	12.9	25.2	29.8	16.1	30.2	19.1	25.9	

ANEMOMETER HEIGHT = 4 METERS = 13 FEET

NUMBER OF OBSERVATIONS = 4988

PERCENTAGE DATA RECOVERY = 25.9

SOURCE: GEORESEARCH, INC.

GLASGOW AIR FORCE BASE

VALLEY COUNTY

The Glasgow Air Force Base is located approximately 20 miles north-northeast of Glasgow at 48°24'00" N and 106°31'20" W (Site No. 130 on Map II-1). Elevation at the base is 2,758 feet. Meteorological data were collected at this site for many years by the United States Air Force.

These data, collected primarily for aviation and weather forecasting uses, consist of short-term (5 minutes or less) averages of wind speed and wind direction, as well as other meteorological parameters. Data were gathered once per hour. The available data have been analyzed by Battelle Pacific Northwest Laboratories. Because of a change in anemometer height, the data set was split into two parts for analysis: October 1, 1958, through June 7, 1961; and June 8, 1961, through June 30, 1968. Data from the latter period only were selected for inclusion in the *Montana Wind Energy Atlas*. The anemometer was mounted on a ground mast at a height of 4.0 meters. The site is representative of the northeastern corner of Montana.

Average annual wind speed at the base was 9.6 miles per hour. Average monthly wind speeds varied from 8.7 miles per hour in August and November to 11.9 miles per hour in May.

Average annual wind power was 109.0 watts/m². Average monthly wind power varied from 77.0 watts/m² in July to 172.0 watts/m² in May.

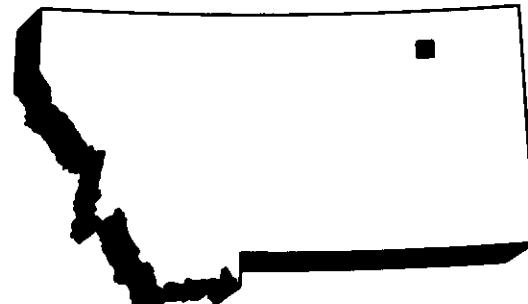


Table IV - 152
Monthly Wind Speed Distribution
VALLEY COUNTY - GLASGOW AIR FORCE BASE
06/08/61 - 06/30/68

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
CALM (<1.1)	8.4	9.0	8.2	4.8	4.9	7.8	7.4	8.8	9.1	8.0	8.6	10.5	8.0	CALM (<0.5)
1.1- 3.1	4.0	4.0	4.1	2.5	2.8	3.5	4.0	4.0	4.0	3.3	4.1	3.8	3.7	0.5- 1.4
3.4- 5.4	12.2	11.9	14.0	11.1	8.9	12.1	15.7	15.0	13.5	13.6	14.9	13.2	13.0	1.5- 2.4 S
S 5.6- 7.6	15.2	16.1	17.0	15.8	12.6	16.4	16.8	17.5	15.9	17.7	19.2	16.2	16.4	2.5- 3.4 P
P 7.8- 9.8	14.7	18.6	14.9	15.1	12.8	13.9	16.9	15.6	16.7	16.6	16.5	15.9	15.7	3.5- 4.4 E
E 10.1-12.1	15.2	13.0	13.2	13.9	13.7	15.9	16.3	14.7	15.0	15.0	14.3	14.2	14.6	4.5- 5.4 E
E 12.3-14.3	10.3	8.4	9.2	10.7	12.4	10.6	8.8	9.2	8.1	9.9	8.2	9.1	9.6	5.5- 6.4 D
D 14.5-16.6	6.9	6.2	7.0	8.0	9.3	7.4	5.4	6.4	5.9	6.0	4.6	6.0	6.6	6.5- 7.4 M
16.8-18.8	5.2	4.9	5.4	7.9	9.5	5.7	4.5	4.6	5.2	3.9	3.8	4.7	5.4	7.5- 8.4 T
M 19.0-21.0	3.2	2.7	3.0	3.7	4.7	2.5	2.0	1.6	2.3	2.3	2.2	2.1	2.7	8.5- 9.4
I 21.3-23.3	2.1	2.4	1.7	3.3	3.5	2.0	1.2	1.3	1.8	1.4	1.7	1.6	2.0	9.5-10.4
L 23.5-25.5	0.9	0.9	1.0	1.4	1.5	0.8	0.5	0.5	1.0	1.0	0.6	0.6	0.9	10.5-11.4
E 25.7-27.7	0.6	0.8	0.6	0.9	1.3	0.7	0.2	0.4	0.7	0.5	0.3	0.7	0.6	11.5-12.4 R
S 28.0-30.0	0.4	0.7	0.5	0.6	1.2	0.4	0.2	0.3	0.5	0.5	0.5	0.7	0.5	12.5-13.4 S
/ 30.2-32.2	0.2	0.2	0.0	0.1	0.3	0.1	0.0	0.0	0.1	0.2	0.2	0.4	0.2	13.5-14.4 /
H 32.4-34.4	0.1	0.1	0.0	0.1	0.3	0.0	0.1	0.0	0.1	0.2	0.0	0.2	0.1	14.5-15.4 S
O 34.7-36.7	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5-16.4 E
U 36.9-38.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	16.5-17.4
R 39.1-41.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	17.5-18.4
41.4-43.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5-19.4 N
43.6-45.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5-20.4 D
45.9-56.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5-25.4
57.0-68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.5-30.4
68.2-79.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.5-35.4
79.4-90.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.5-40.4
>90.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	>40.4
AVERAGE SPEED (MPH)	9.8	9.6	9.4	11.0	11.9	9.8	8.9	8.7	9.2	9.4	8.7	9.2	9.6	
AVERAGE SPEED (M/SEC)	4.4	4.3	4.2	4.9	5.3	4.4	4.0	3.9	4.1	4.2	3.9	4.1	4.3	
WIND POWER (WATTS/M**2)	118.0	117.0	104.0	138.0	172.0	105.0	77.0	81.0	100.0	99.0	91.0	110.0	109.0	

ANEMOMETER HEIGHT = 13.0 FEET = 4.0 METERS

SOURCE: BATTELLE PACIFIC NORTHWEST LABORATORIES

GLASGOW NWS AIRPORT

VALLEY COUNTY

The Glasgow airport is located approximately 1 mile north of Glasgow at 48 13 12 N and 106 37 12 W (Site No. 131 on Map II-1). Elevation at the airport is 2,280 feet.

The Glasgow area is open plains country cut by the Milk River Valley and many tributary valleys. Land in the area is used primarily for agriculture. Much of the land is privately owned; however, a substantial amount of land is owned by the state and the federal government. The Fort Peck Indian Reservation lies about 10 miles to the east. Several state and federal highways run through the area.

Electrical power is supplied by the Montana Power Company and the Valley and Northern electric cooperatives. Many power transmission lines cross the area.

The nearest other commercial airport is located at Wolf Point. The Williston Military Operations Area (MOA) is located to the northeast. The Hays and Loring MOAs are located to the southwest and northwest. These areas are subject to occasional military aviation use.

Meteorological data have been collected at this site for many years by the National Weather Service. These data, collected primarily for aviation and weather forecasting uses, consist of short-term (5 minutes or less) averages of wind speed and direction, as well as other meteorological parameters. Data were gathered once per hour. The data have been analyzed by Battelle Pacific Northwest Laboratories. Because of changes in anemometer height, the data set has been broken into three periods for analysis: October 1, 1955, through August 5, 1962; August 6, 1962, through May 31, 1968; and June 1, 1968, through December 31, 1978. Data from the most recent period only were selected for inclusion in the *Montana Wind Energy Atlas*.

The data set for Glasgow consists of summaries of observations made every third hour. The anemometer was mounted on a ground mast at a height of 6.1 meters. The site is representative of the northeastern corner of Montana.

Average monthly wind speeds ranged from 9.8 miles per hour in November to 13.0 miles per hour in April. Average annual wind speed was 11.0 miles per hour.

Average monthly wind power ranged from 109.0 watts/m² in July to 211.0 watts/m² in April. Average annual wind power was 139.0 watts/m².

Average seasonal wind speeds were 10.4 miles per hour in autumn and winter, 10.9 miles per hour in summer, and 12.1 miles per hour in spring. The highest average wind speeds occurred in mid-afternoon during all seasons. The lowest average wind speeds occurred in early morning, except during the winter, when they occurred in mid-morning. The diurnal range of average wind speeds was greatest in summer and least in winter.

The most common wind directions were east-southeast and northwest. Winds from the south-southwest through southwest were least common. By direction, average wind speeds ranged from 7.6 miles per hour for winds from the south-southwest and southwest to 13.0 miles per hour for northwesterly winds.

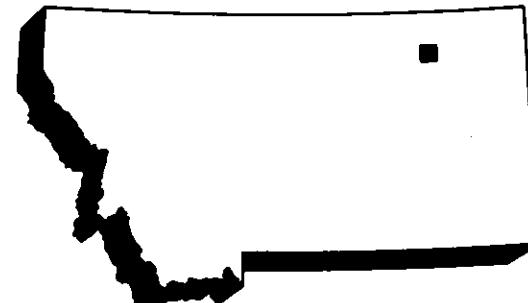


Table IV - 153
Monthly Wind Speed Distribution
VALLEY COUNTY - GLASGOW NWS AIRPORT

06/01/68 - 12/31/78

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
CALM (<1.1)	6.2	5.2	3.4	2.2	2.0	2.0	2.8	1.8	3.1	3.3	5.8	5.5	3.6	CALM (<0.5)
1.1- 3.1	0.0	0.3	0.0	0.0	0.0	0.2	0.1	0.2	0.1	0.1	0.3	0.4	0.2	0.5- 1.4
3.4- 5.4	13.7	12.6	9.0	6.4	7.8	9.4	9.9	8.6	10.8	11.7	14.1	14.3	10.7	1.5- 2.4 S
S 5.6- 7.6	17.7	19.9	16.0	12.9	14.8	17.7	17.6	17.7	17.2	18.9	20.6	18.3	17.5	2.5- 3.4 P
P 7.8- 9.8	16.3	16.8	16.5	13.8	18.2	17.1	20.5	19.2	18.9	18.1	18.1	15.7	17.5	3.5- 4.4 E
E 10.1-12.1	13.1	13.3	16.3	15.1	16.3	15.0	16.7	16.8	15.2	14.9	12.2	12.7	14.8	4.5- 5.4 EED
E 12.3-14.3	9.6	9.3	11.8	11.5	11.4	12.0	11.5	11.5	10.0	11.0	8.4	9.7	10.7	5.5- 6.4 D
D 14.5-16.6	7.5	7.0	8.3	9.8	9.1	8.7	8.1	9.1	9.0	7.3	7.3	8.4	8.3	6.5- 7.4
16.8-18.8	5.4	4.5	6.3	9.7	6.9	7.6	5.7	6.7	6.2	5.5	5.7	6.0	6.3	7.5- 8.4 M
M 19.0-21.0	4.2	3.2	4.8	7.2	5.7	4.8	3.4	4.3	4.5	4.0	3.5	4.0	4.5	8.5- 9.4 E
I 21.3-23.3	2.4	2.8	3.0	4.6	2.9	2.3	1.6	2.2	2.3	2.5	2.0	2.5	2.6	9.5-10.4 T
L 23.5-25.5	1.9	1.7	1.9	2.9	1.5	1.9	0.6	0.8	1.0	0.9	0.8	1.3	1.4	10.5-11.4 E
E 25.7-27.7	1.0	1.6	1.0	1.7	1.4	0.8	0.5	0.7	1.0	0.8	0.4	0.9	1.0	11.5-12.4 R
S 28.0-30.0	0.4	0.6	0.7	1.1	1.0	0.3	0.5	0.3	0.4	0.4	0.2	0.2	0.5	12.5-13.4 S
/ 30.2-32.2	0.2	0.6	0.4	0.3	0.3	0.2	0.3	0.0	0.2	0.3	0.3	0.1	0.3	13.5-14.4 /
H 32.4-34.4	0.0	0.4	0.2	0.3	0.4	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.2	14.5-15.4 S
O 34.7-36.7	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	15.5-16.4 SEC
U 36.9-38.9	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.5-17.4 C
R 39.1-41.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5-18.4 O
41.4-43.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5-19.4 N
43.6-45.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5-20.4 D
45.9-56.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5-25.4
57.0-68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.5-30.4
68.2-79.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.5-35.4
79.4-90.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.5-40.4
>90.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	>40.4
AVERAGE SPEED (MPH)	10.3	10.5	11.4	13.0	11.9	11.2	10.5	11.0	11.0	10.5	9.8	10.3	11.0	
AVERAGE SPEED (M/SEC)	4.6	4.7	5.1	5.8	5.3	5.0	4.7	4.9	4.9	4.7	4.4	4.6	4.9	
AVERAGE WIND POWER (WATTS/M**2)	139.0	152.0	161.0	211.0	164.0	131.0	109.0	116.0	129.0	126.0	114.0	126.0	139.0	

ANEMOMETER HEIGHT = 20.0 FEET = 6.1 METERS

SOURCE: BATTELLE PACIFIC NORTHWEST LABORATORIES

Table IV - 154

Percentage Frequency Summary for Wind Speed

VALLEY COUNTY - GLASGOW NWS AIRPORT (WINTER)

06/01/68 - 12/31/78

		WIND SPEED (MPH)														AV	AV			
		<0.5	0.5-	1.5-	2.5-	3.5-	4.5-	5.5-	6.5-	7.5-	8.5-	9.5-	10.5-	11.5-	12.5-	13.5-	>14.4	SPEED	SPEED	
		<1.1	1.1-	3.4-	5.6-	7.8-	10.1-	12.3-	14.5-	16.8-	19.0-	21.3-	23.5-	25.7-	28.0-	30.2-	>32.2	(MPH)	(M/SEC)	
262	H	3	6.2	0.2	12.9	19.2	18.1	12.7	10.2	7.8	4.5	2.4	2.6	1.4	1.0	0.0	0.6	0.1	10.0	4.5
		6	5.5	0.7	13.6	20.0	18.9	15.3	7.1	6.2	4.5	2.8	2.3	1.4	1.3	0.1	0.3	0.2	9.9	4.4
	O	9	6.4	0.1	17.3	19.1	14.9	12.4	10.0	7.5	3.7	2.4	2.4	2.2	0.3	0.7	0.3	0.3	9.8	4.4
		12	5.1	0.3	13.8	17.8	13.3	12.5	11.6	8.2	5.4	4.1	2.8	1.7	1.9	0.8	0.1	0.4	10.8	4.8
	U	15	4.8	0.1	13.0	15.0	15.3	11.6	9.2	10.4	7.7	5.4	3.0	1.5	1.8	0.8	0.7	0.0	11.3	5.1
		18	5.5	0.0	12.9	19.6	14.6	15.1	8.6	6.5	6.0	4.7	3.0	1.7	1.0	0.3	0.1	0.4	10.5	4.7
	R	21	6.4	0.2	12.6	19.8	16.2	12.2	9.2	6.7	5.8	4.9	2.4	2.0	1.2	0.2	0.0	0.2	10.3	4.6
		24	5.5	0.3	12.4	18.5	18.7	12.7	10.5	7.9	5.1	3.9	2.3	1.0	0.9	0.2	0.1	0.2	10.2	4.6
	ALL HOURS		5.6	0.2	13.6	18.6	16.2	13.0	9.5	7.7	5.3	3.8	2.6	1.6	1.2	0.4	0.3	0.2	10.4	4.6

SOURCE: BATTELLE PACIFIC NORTHWEST LABORATORIES

Table IV - 155
Percentage Frequency Summary for Wind Speed
VALLEY COUNTY - GLASGOW NWS AIRPORT (SPRING)
06/01/68 - 12/31/78

		WIND SPEED (MPH)																			
		<0.5	0.5-	1.5-	2.5-	3.5-	4.5-	5.5-	6.5-	7.5-	8.5-	9.5-	10.5-	11.5-	12.5-	13.5-	>14.4	AV	AV		
			1.4	2.4	3.4	4.4	5.4	6.4	7.4	8.4	9.4	10.4	11.4	12.4	13.4	14.4		SPEED	SPEED		
																	(MPH)	(M/SEC)			
		<1.1		1.1-	3.4-	5.6-	7.8-	10.1-	12.3-	14.5-	16.8-	19.0-	21.3-	23.5-	25.7-	28.0-	30.2-	>32.2		AV SPEED (MPH)	
		<1.1		3.1	5.4	7.6	9.8	12.1	14.3	16.6	18.8	21.0	23.3	25.5	27.7	30.0	32.2	>32.2		AV SPEED (M/SEC)	
		H	3	2.8	0.0	10.7	17.5	18.2	17.0	12.4	7.7	5.1	3.5	2.2	1.3	1.0	0.7	0.0	0.1	10.7	4.8
			6	4.0	0.0	10.8	19.5	15.8	17.5	10.8	6.9	5.6	4.5	2.1	1.3	0.4	0.7	0.2	0.1	10.6	4.7
		O	9	3.6	0.0	8.7	13.3	14.3	15.3	12.7	8.9	8.4	5.2	3.2	2.3	2.0	1.5	0.4	0.1	12.1	5.4
			12	1.4	0.0	6.3	11.3	12.5	13.9	11.2	11.4	10.2	8.9	5.1	3.2	2.0	1.3	0.6	0.7	13.7	6.1
		U	15	1.4	0.0	4.9	10.6	12.9	11.3	11.3	12.0	11.7	9.9	5.3	3.1	2.8	1.0	0.5	1.2	14.3	6.4
			18	1.1	0.0	5.5	10.8	13.8	14.7	13.5	12.3	9.3	7.4	4.8	2.5	1.2	1.8	0.5	0.8	13.6	6.1
		R	21	3.2	0.1	6.8	17.4	23.4	18.0	10.0	5.7	5.1	4.4	2.1	2.0	1.0	0.3	0.2	0.5	11.0	4.9
			24	2.9	0.1	8.4	16.4	18.8	19.8	10.8	7.8	5.7	3.7	3.1	1.1	0.6	0.1	0.2	0.4	11.0	4.9
		ALL HOURS		2.5	0.0	7.7	14.6	16.2	15.9	11.6	9.1	7.6	5.9	3.5	2.1	1.4	0.9	0.3	0.5	12.1	5.4

SOURCE: BATTELLE PACIFIC NORTHWEST LABORATORIES

Table IV - 156

Percentage Frequency Summary for Wind Speed

VALLEY COUNTY - GLASGOW NWS AIRPORT (SUMMER)

06/01/68 - 12/31/78

		WIND SPEED (MPH)																	
		WIND SPEED (M/SEC)																	
<0.5		0.5-	1.5-	2.5-	3.5-	4.5-	5.5-	6.5-	7.5-	8.5-	9.5-	10.5-	11.5-	12.5-	13.5-	>14.4	AV	AV	
	1.4	2.4	3.4	4.4	5.4	6.4	7.4	8.4	9.4	10.4	11.4	12.4	13.4	14.4		SPEED	SPEED		
	<1.1	1.1-	3.4-	5.6-	7.8-	10.1-	12.3-	14.5-	16.8-	19.0-	21.3-	23.5-	25.7-	28.0-	30.2-	(MPH)	(M/SEC)		
H	3	4.4	0.1	12.2	22.1	21.5	17.5	9.3	4.9	4.5	1.8	1.3	0.1	0.3	0.0	0.0	9.2	4.1	
	6	3.7	0.3	13.2	25.6	20.8	16.0	9.4	5.1	2.6	1.5	0.6	0.5	0.5	0.1	0.0	8.9	4.0	
O	9	2.2	0.2	10.9	16.1	18.4	14.4	13.2	9.9	7.2	4.2	1.5	0.7	0.8	0.3	0.1	0.0	10.9	4.9
	12	0.9	0.0	7.3	14.5	14.7	15.1	13.8	12.8	9.4	5.5	2.4	1.7	0.6	0.9	0.1	0.2	12.2	5.5
U	15	1.1	0.1	5.5	10.0	13.3	15.0	15.9	11.2	11.1	7.8	4.3	2.0	1.6	0.7	0.4	0.1	13.3	6.0
	18	0.9	0.2	4.4	11.4	15.3	16.5	14.1	13.8	9.1	6.7	2.9	2.6	1.1	0.4	0.3	0.2	12.9	5.8
R	21	2.3	0.4	10.9	21.9	25.4	15.0	7.4	6.0	4.4	3.5	1.1	1.0	0.5	0.0	0.3	0.1	9.8	4.4
	24	2.1	0.1	10.0	19.7	22.2	19.7	10.2	5.5	4.9	2.4	2.1	0.3	0.1	0.5	0.2	0.0	10.1	4.5
ALL HOURS		2.2	0.2	9.3	17.7	19.0	16.2	11.7	8.6	6.7	4.2	2.0	1.1	0.7	0.4	0.2	0.1	10.9	4.9

SOURCE: BATTELLE PACIFIC NORTHWEST LABORATORIES

Table IV - 157

Percentage Frequency Summary for Wind Speed

VALLEY COUNTY - GLASGOW NWS AIRPORT (AUTUMN)

06/01/68 - 12/31/78

		WIND SPEED (MPH)															AV	AV	
		<0.5	0.5-	1.5-	2.5-	3.5-	4.5-	5.5-	6.5-	7.5-	8.5-	9.5-	10.5-	11.5-	12.5-	13.5-	>14.4	SPEED	SPEED
		<1.1	1.1-	3.4-	5.6-	7.8-	10.1-	12.3-	14.5-	16.8-	19.0-	21.3-	23.5-	25.7-	28.0-	30.2-	>32.2	(MPH)	(M/SEC)
H	3	5.9	0.2	14.2	20.5	21.2	13.1	9.4	7.1	4.5	1.3	1.3	0.4	0.5	0.2	0.2	0.1	9.3	4.1
	6	4.8	0.2	15.4	21.7	21.0	14.5	7.4	6.6	3.9	2.5	1.5	0.3	0.2	0.0	0.0	0.1	9.1	4.1
O	9	5.1	0.4	15.0	21.2	15.0	13.3	8.5	8.0	5.9	3.4	2.0	1.2	0.7	0.1	0.3	0.0	9.9	4.4
	12	2.4	0.0	10.2	17.9	15.5	11.1	10.9	9.9	7.8	6.7	3.5	1.2	1.3	0.9	0.2	0.6	11.9	5.3
U	15	1.8	0.0	8.3	11.5	12.1	12.9	13.0	12.8	10.3	7.5	4.3	1.6	1.6	0.9	0.7	0.8	13.1	5.9
	18	2.9	0.2	9.9	16.0	21.0	15.1	10.8	7.2	5.7	5.4	2.6	1.6	0.6	0.7	0.2	0.2	11.0	4.9
R	21	3.5	0.2	12.6	21.3	21.3	17.2	9.2	5.9	3.9	1.9	1.7	0.6	0.4	0.1	0.2	0.2	9.5	4.3
	24	6.1	0.1	12.1	21.3	19.7	15.8	9.3	5.6	4.2	3.2	1.6	0.3	0.5	0.0	0.2	0.1	9.4	4.2
ALL HOURS		4.1	0.2	12.2	18.9	18.4	14.1	9.8	7.9	5.8	4.0	2.3	0.9	0.7	0.3	0.3	0.2	10.4	4.7

SOURCE: BATTELLE PACIFIC NORTHWEST LABORATORIES

Table IV - 158
 Annual Wind Rose Distribution
VALLEY COUNTY - GLASGOW NWS AIRPORT
06/01/68 - 12/31/78

DIRECTION>	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL <DIRECTION	
SPEED (MPH)																	SPEED (M/SEC)	
	1.1- 3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5- 1.4	
	3.4- 5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5- 2.4	
S	5.6- 7.6	0.9	0.4	0.4	0.4	0.5	0.6	0.5	0.5	0.7	0.4	0.5	0.8	1.3	0.9	1.0	10.7	
P	7.8- 9.8	1.3	0.6	0.5	0.6	1.2	1.6	0.9	0.8	1.2	0.5	0.7	1.1	1.8	1.5	1.5	2.5- 3.4	
E	10.1-12.1	0.9	0.4	0.6	0.8	2.1	3.1	1.3	0.6	0.7	0.3	0.4	0.6	1.3	1.5	1.3	17.5	
E	12.3-14.3	0.8	0.4	0.4	0.5	2.1	3.7	1.0	0.5	0.4	0.2	0.2	0.3	1.0	1.1	1.1	15.0	
D	14.5-16.6	0.5	0.2	0.2	0.3	1.1	2.8	0.7	0.4	0.4	0.1	0.1	0.2	0.7	1.0	0.8	10.5	
M	16.8-18.8	0.5	0.1	0.1	0.2	0.7	2.0	0.5	0.3	0.2	0.0	0.1	0.2	0.7	0.9	0.7	8.2	
I	19.0-21.0	0.4	0.2	0.2	0.2	0.6	1.5	0.3	0.2	0.1	0.0	0.0	0.1	0.4	0.7	0.9	6.4	
L	21.3-23.3	0.3	0.1	0.1	0.1	0.4	1.0	0.2	0.1	0.1	0.0	0.0	0.1	0.3	0.6	0.7	4.6	
E	23.5-25.5	0.2	0.1	0.1	0.0	0.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.5	2.7	
S	25.7-27.7	0.1	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	1.2	
/	28.0-30.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.9	
H	30.2-32.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	13.5-14.4	
O	32.4-34.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	14.5-15.4	
O	34.7-36.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5-16.4	
U	36.9-38.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.5-17.4	
R	39.1-41.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5-18.4	
	41.4-43.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5-19.4	
	43.6-45.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5-20.4	
	45.9-56.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5-25.4	
	57.0-68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.5-30.4	
	68.2-79.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.5-35.4	
	79.4-90.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.5-40.4	
	>90.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	>40.4	
	CALM															3.6	CALM	
	TOTAL	6.0	2.6	2.7	3.3	9.3	17.4	5.4	3.4	3.9	1.6	2.1	3.4	7.9	9.2	10.2	8.0	100.0
AV SPD (MPH)	11.0	10.5	10.7	10.3	11.9	12.8	10.5	9.8	8.7	7.6	7.6	8.5	10.5	12.5	13.0	11.6	10.5	AV SPD (MPH)
AV SPD (M/S)	4.9	4.7	4.8	4.6	5.3	5.7	4.7	4.4	3.9	3.4	3.4	3.8	4.7	5.6	5.8	5.2	4.7	AV SPD (M/S)

SOURCE: BATTELLE PACIFIC NORTHWEST LABORATORIES

Figure IV - 17
Annual Wind Rose
GLASGOW NWS AIRPORT — VALLEY COUNTY
(1968 - 1978)

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KEY

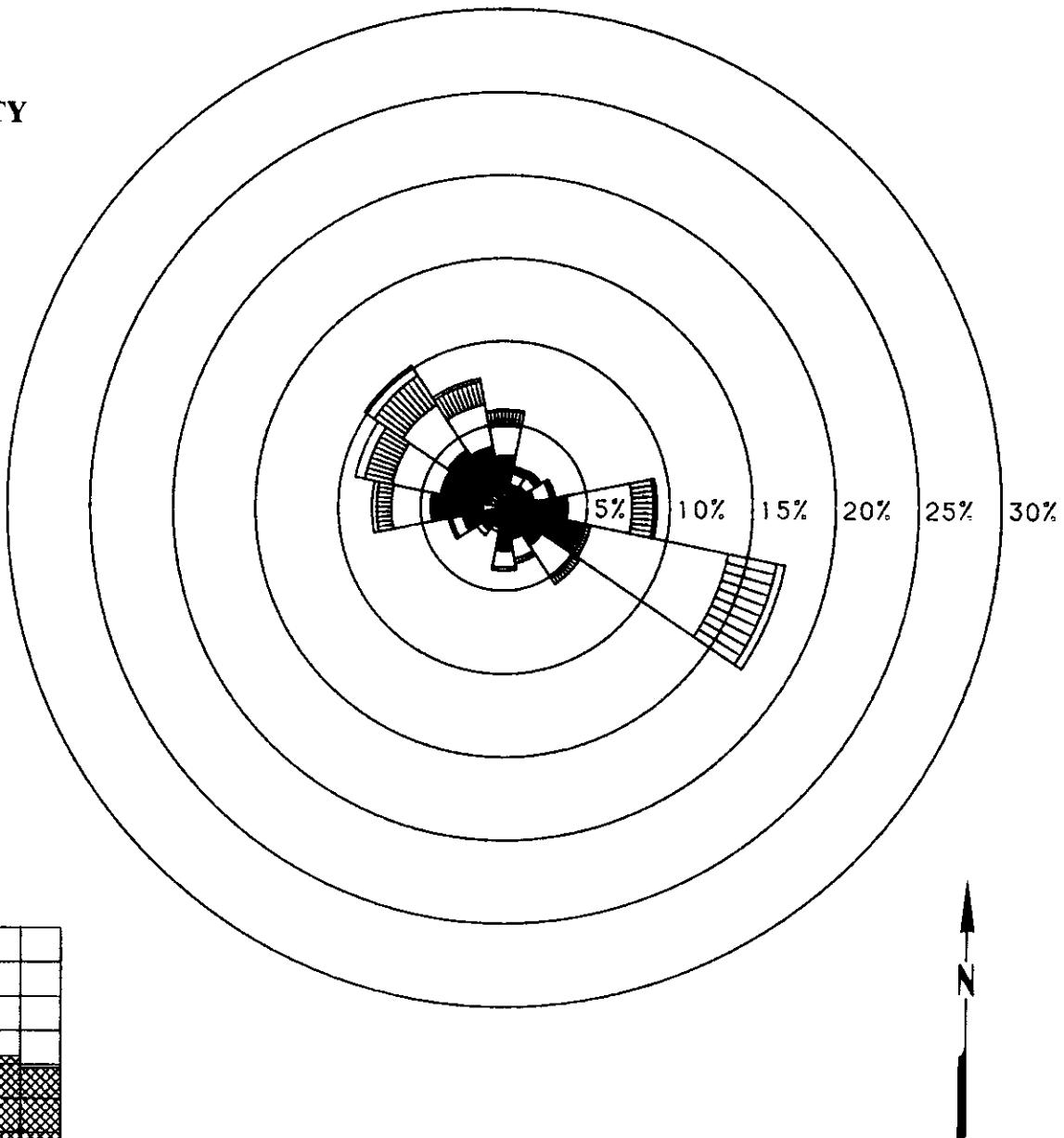
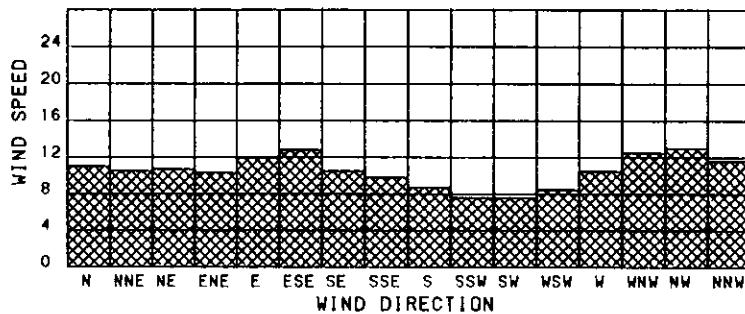
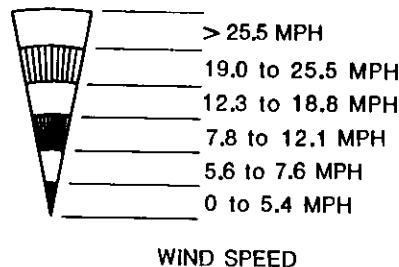


Table IV - 159
Coefficients of Weibull Distribution
VALLEY COUNTY - GLASGOW NWS AIRPORT

06/01/68 - 12/31/78

MONTH	SCALE FACTOR (C) (M/SEC)	SHAPE FACTOR (K)
JANUARY	5.6660	1.9680
FEBRUARY	6.6380	2.6350
MARCH	6.2470	2.1430
APRIL	6.9250	2.3220
MAY	6.4370	2.2040
JUNE	6.6400	3.0260
JULY	6.5940	3.1830
AUGUST	6.3260	3.2680
SEPTEMBER	6.6630	3.1570
OCTOBER	6.7230	3.0130
NOVEMBER	6.3180	2.6950
DECEMBER	6.1650	2.8210
YEAR	6.7430	2.8560

SOURCE: BATTELLE PACIFIC NORTHWEST LABORATORIES